

Remarks

By this response, claims 1, 3, 12, and 45 have been amended. Therefore, claims 1-14, and 45-46 are pending in the application. No new matter has been entered.

Claim Rejections - 35 USC § 102(b)/103(a)

Claims 1, 3, 5-9 and 45 are rejected under 35 USC 102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as obvious over Akram et al. (WO9931732A). Claims 2, 4, 12-14 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram '732. Claim 10 is rejected as being unpatentable over Akram '732 in view of Admitted Prior Art (APA). Claims 11-14 are rejected as being unpatentable over [Pan] (5,750,435) in view of Motoyoshi et al (JP 6-53492).

In view of these rejections, independent claims 1, 3, 12, and 45 have been amended to recite features neither disclosed nor suggested by the cited art. Applicants note that in the circuit structure embodiments of Akram '732 having a gate structure provided on a portion of an oxide layer, Akram teaches diffusing an ion concentration into the oxide layer. Because the ions are diffused, Applicants note that the dopant in addition to diffusing under the gate structure also diffuse outwardly into the oxide layer adjacent the sides of the gate structure. See Figs. 9 and 10.

Accordingly, Arkam '732 fails to disclose or suggest a circuit structure having an overlap region of the oxide layer located beneath the gate structure and adjacent the first leading edge and inward of the second leading edge, the overlap region having a predetermined ion implant concentration higher than in remaining oxide layer portions adjacent both said first and second leading edges of the gate structure, as is recited by amended independent claim 1.

Additionally, Arkam '732 fails to disclose or suggest a circuit structure having a gate electrode located on a portion of the gate oxide layer, wherein the portion of the gate oxide layer includes an overlap region which is beneath the gate electrode inward of the source region and adjacent the drain region, the overlap region having an ion implant concentration higher than in remaining portions of the oxide layer adjacent both sides of the gate electrode, as is recited by amended claims 3, 12, and 45.

With regards to the rejection of claims 11-14 as being unpatentable over [Pan] (5,750,435) in view of Motoyoshi et al (JP 6-53492), Pan teaches implant ion 18 into the gate

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oxide region 14 beneath both edges of the gate electrode 16, which is critical to the invention of Pan. See col 5., lines 60-66. Therefore, there is no suggestion provided by Pan to provide a circuit structure with the feature of an overlap region having an ion implant concentration higher than in remaining portions of the oxide layer adjacent both sides of the gate electrode.

Motoyoshi et al. discloses uniform orthogonal fluorine implanting over the entire surface of gate oxide. Accordingly, Motoyoshi et al. fail to correct the above noted deficiency of Pan. Accordingly, one skilled in the art combining the teachings of Motoyoshi et al. with Pan would fail to produce the claimed invention recited in amended independent claim 12.


The remaining rejections are noted by the Applicants but are believed moot in view of the above amendments to independent claims 1, 3, 12, and 45. Accordingly, Applicants assert that claims 1, 3, 12 and 45, and the claims that depend therefrom, are patentable over the cited prior art and, therefore, respectfully requests that the anticipation and obviousness rejections to the claims be withdrawn.

The Applicants respectfully submit that, in view of the above amendments and remarks, the application is now in condition for allowance. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,

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